

Burning Peat—a good source of energy and a firefighter’s nightmare

by Doug Newbould

Back in September of 2005, my wife and I traveled to Ireland to celebrate our 25th anniversary and to explore some of her family’s ancestral roots. Some of you might recall I shared some of our experiences from that trip in the Refuge Notebook (11/4/05).

One of the aspects of life in Ireland I witnessed but did not write about then, was the use of peat for fuel. As we traveled along the windswept and oft storm-battered western coastline, visiting various towns, inns and pubs, there were several occasions on which we were grateful to experience the warmth and ambience of a peat fire. And we learned how the Irish have been harvesting peat and warming their cold bones with it for millennia.

As I described in that earlier article, thousands of years ago Ireland was a forested isle, but population growth, farming and demand for wood products caused widespread deforestation. Lacking firewood and needing an energy source for cooking and heating, the people turned to peat ‘logs’. As peat is abundant in the bogs, fens and moors of Ireland and as necessity is the mother of invention, someone must have observed peat burning during a period of drought and wondered if it could be used as fuel.

What someone discovered was that peat, when cut from the ground as chunks or ‘logs’ and piled or stacked above the water table, eventually dries out sufficiently to burn in a fireplace or stove. And dried peat burns very slowly and efficiently. By that I mean it smolders intensely, much like a cigarette or cigar when air is drawn through the tobacco, achieving nearly complete combustion and producing abundant heat energy. Conversely, peat produces only small quantities of ash and a pleasantly aromatic smoke with a sweet earthy bouquet.

During one of our excursions, driving east along the weathered coast between Clifden and Galway, we came upon a peat harvesting area. Gazing across the bogs we could see line after line of peat cuts, like two-foot high cliffs of obsidian glinting in the sun, each stretching out for a hundred feet or more. Near these escarpments were mounds of the four or five inch di-

ameter black logs, each mound with enough volume to fill a pick-up truck or two. I stopped at one pile near the road to study the peat logs more closely. What I found was quite interesting.

When still wet, the logs were quite heavy – several pounds each. Dried, they weighed much less, only a fraction of their former mass and easy to handle with one hand. Upon closer inspection I could see the logs were composed of densely packed roots, stems, twigs and leaves from heaths and other dwarf shrubs and mosses. As one might expect, the individual plant parts were much more discernable at the top of the core than at the bottom. And even though the logs smelled like dank rich earth, there was no visible inorganic or mineral soil or sand present. Each log looked to be carved out of the face of the cut by some kind of semi-cylindrical spade or perhaps a coring tube like we use to catch razor clams.

In some of the buildings we visited a combination of wood, peat and sometimes—coal burned in the fireplaces. Where coal was burning the air reeked of sulfur and the black acrid smoke stung the eyes and throat. I tried to imagine what it must have been like in the cities where coal was once the fuel of necessity. To me, if given the choice, I would go for the peat and wood.

Living here in Alaska, I’ve often wondered if there are places where peat could be harvested and used in an environmentally-friendly manner. Besides the release of carbon into the atmosphere, I wonder what adverse environmental impacts would result from cutting and burning peat as compared to wood, coal or other fossil fuels.

As a firefighter and as a fire manager, I have often experienced the challenge of peat fires in the wildlands of the western states and Alaska. And I have to say I would much rather enjoy a peat fire in a fireplace or woodstove. Peat fires can be nearly impossible to extinguish once ignited and they can be quite hazardous to firefighter health and safety.

At the Clover-Mist Fire in Yellowstone in 1988, I was leading a crew of firefighters single-file across

what appeared to be a burned meadow or bog when one of my crew stepped into a deep hole where the ash was about three feet deep. Although we could smell no smoke nor sense any heat on the surface of the bog/meadow, the peat in the bottom of the hole was still burning intensely. The crewmember received second- and third-degree burns on one leg below the knee.

Other firefighters have been scalded by the steam that literally explodes directly back at them when they spray a straight stream of water into deep ash or burning peat. And many a wildfire has escaped control, rekindled or reburned after hiding away down deep in organic ground fuels.

The firefighters down in the Okefenokee National Wildlife Refuge in southern Georgia are currently experiencing the nightmare of these deep organic peat fires—nightmarish in the uncertainty and risk of trying to control such fires. Though in the greater scheme of things, these fires naturally occur during severe drought and can restore historic habitat conditions.

Here on the Kenai Peninsula, where peat mosses

or Sphagnum grow under closed canopy spruce and hemlock forests, deep-burning peat fires tend to occur only in drought years or late in the season when ground fuels are at their driest. Fires burning deep in compacted duff, root-wads or peat can carry-over from one year to the next. This happened on the refuge last year within the King County Creek Fire perimeter, when the fire from 2005 over-wintered in ground fuels and popped back up to the surface during a brief dry period last summer.

While these deep-burning fires can have some beneficial ecological effects, they can also release tremendous amounts of carbon into the atmosphere. As with many land management scenarios, there are complex trade-offs between adverse and beneficial effects in the short-term and the long. Maybe the Irish are on to something—perhaps it is better to take the peat to the fire rather than the fire to the peat.

Doug Newbould is the Fire Management Officer for the Kenai National Wildlife Refuge. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.